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CLAIMS

1. A solid state image sensor device comprising:
an image sensing cell array portion including a plurality of unit cells, the unit cells being arranged in a matrix form on a semiconductor substrate, the image sensing cell array portion having a photo-sensitive pixel region and an optical black pixel region, the unit cells of the photo-sensitive pixel region for sensing an image, and the unit cells of the optical black pixel region for defining an optical black level;
a selecting circuit for selecting the unit cells of the image sensing cell array portion in a unit of one horizontal line of the image sensing cell array portion;
a plurality of vertical signal lines on which signals are read out from the unit cells selected by the selecting circuit; and
a wiring short-circuiting at least two of the vertical signal lines in the optical black pixel region with each other.
2. A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region is excluded from being short-circuited with said at least two vertical signal lines by the wiring.
3. A solid state image sensor device according to

claim 1, wherein at least one of the vertical signal lines in the optical black pixel region, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

4. A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

5. A solid state image sensor device according to claim 1, wherein at least one of the vertical signal lines in the optical black pixel region, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring, and wherein at least one of the vertical signal lines in the optical black pixel region, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

6. A solid state image sensor device according to claim 1, wherein the wiring causes levels of the readout signals of said at least two vertical signal lines to be averaged.

7. A solid state image sensor device comprising:

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an image sensing cell array portion including a plurality of unit cells, the unit cells being arranged in a matrix form on a semiconductor substrate, the image sensing cell array portion having a photo-sensitive pixel region and a plurality of optical black pixel regions having optical black levels different from each other, the unit cells of the photo-sensitive pixel region for sensing an image, and the unit cells of the optical black pixel regions for defining optical black levels;

a selecting circuit for selecting the unit cells of the image sensing cell array portion in a unit of one horizontal line of the image sensing cell array portion;

15 a plurality of vertical signal lines on which
signals are read out from the unit cells selected by
the selecting circuit; and

a wiring short-circuiting a plurality of the vertical signal lines in the optical black pixel regions with each other.

8. A solid state image sensor device according to
claim 7, wherein at least one of the vertical signal
lines in the optical black pixel regions is excluded
from being short-circuited with said plurality of
vertical signal lines by the wiring.

9. A solid state image sensor device according to claim 7, wherein at least one of the vertical signal

lines in the optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said plurality of vertical signal lines by the wiring.

5 10. A solid state image sensor device according to
claim 7, wherein at least one of the vertical signal
lines in the optical black pixel regions, which is at
the opposite side of the photo-sensitive pixel region,
is excluded from being short-circuited with said
0 plurality of vertical signal lines by the wiring.

11. A solid state image sensor device according to
claim 7, wherein at least one of the vertical signal
lines in the optical black pixel regions, which is at
the side of the photo-sensitive pixel region, is
excluded from being short-circuited with said plurality
of vertical signal lines by the wiring, and wherein at
least one of the vertical signal lines in the optical
black pixel regions, which is at the opposite side of
the photo-sensitive pixel region, is excluded from
being short-circuited with said plurality of vertical
signal lines by the wiring.

12. A solid state image sensor device according to
claim 7, wherein the plurality of optical black pixel
regions comprise at least two optical black pixel
regions, the unit cells of one of which includes a PN
junction diode as a photoelectric conversion element
and the unit cells of the other of which includes no PN

~~junction diode.~~

13. A solid state image sensor device according to claim 7, wherein the wiring causes levels of the readout signals of said plurality of vertical signal lines to be averaged.

14. A solid state image sensor device comprising:

an image sensing cell array portion including a plurality of unit cells, the unit cells being arranged in a matrix form on a semiconductor substrate, the

10 image sensing cell array portion having a photo-
sensitive pixel region, a first optical black pixel
region and a second optical black pixel region having
an optical black level different from that of the first
optical black pixel region, the unit cells of the
photo-sensitive pixel region for sensing an image, and
the unit cells of the first and second optical black
pixel regions for defining optical black levels;

a selecting circuit for selecting the unit cells of the image sensing cell array portion in a unit of one horizontal line of the image sensing cell array portion;

a plurality of vertical signal lines on which signals are read out from the unit cells selected by the selecting circuit; and

25 a wiring short-circuiting at least two of the
vertical signal lines in the first and second optical
black pixel regions with each other, one of which being

in the first optical black pixel region and another one of which being in the second optical black pixel region.

15. A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

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16. A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

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17. A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

18. A solid state image sensor device according to claim 14, wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the

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wiring, and wherein at least one of the vertical signal lines in the first and second optical black pixel regions, which is at the opposite side of the photo-sensitive pixel region, is excluded from being short-circuited with said at least two vertical signal lines by the wiring.

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19. A solid state image sensor device according to claim 14, wherein the unit cells of the first optical black pixel region include a PN junction diode as a photoelectric conversion element and the unit cells of the second optical black pixel region include no PN junction diode.

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20. A solid state image sensor device according to claim 14, wherein the wiring causes levels of the readout signals of said at least two vertical signal lines to be averaged.

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